

## VE2: Endoacidic, Epipedal, Aquic Vertisol

### General description of the soil

A shrink-swell, cracking clay soil that is saturated in the upper profile for prolonged periods in most years. The A1 horizon is strongly structured but is not self-mulching, and the soil is strongly acid and sodic below 0.5 m.

<b>Distribution:</b>	Small areas in south-east Queensland.
<b>Typical land use:</b>	Where cleared, grazing of native pastures.
<b>Common variants:</b>	Colour may range from black and grey to dark brown.
<b>World Reference Base:</b>	Natric Vertisol.
<b>Other names:</b>	Black Earths, Weisenboden and Cracking Clays.

### Environment and location of the example profile

<b>Landform:</b>	Swampy depression of an alluvial plain.
<b>Parent material or substrate:</b>	Quaternary alluvium.
<b>Drainage class:</b>	Poorly drained – frequently waterlogged and usually inundated for considerable periods after substantial rain.
<b>Surface condition:</b>	Firm to hardsetting with periodic cracking.
<b>Site disturbance:</b>	Partly cleared.
<b>Native vegetation:</b>	Open woodland of <i>Melaleuca irbyana</i> and <i>Eucalyptus crebra</i> .
<b>Microrelief:</b>	Normal gilgai usually present.

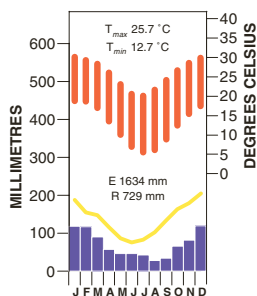


South of Ipswich, south-east Queensland

### Site location



### Site climate



### Soil morphology

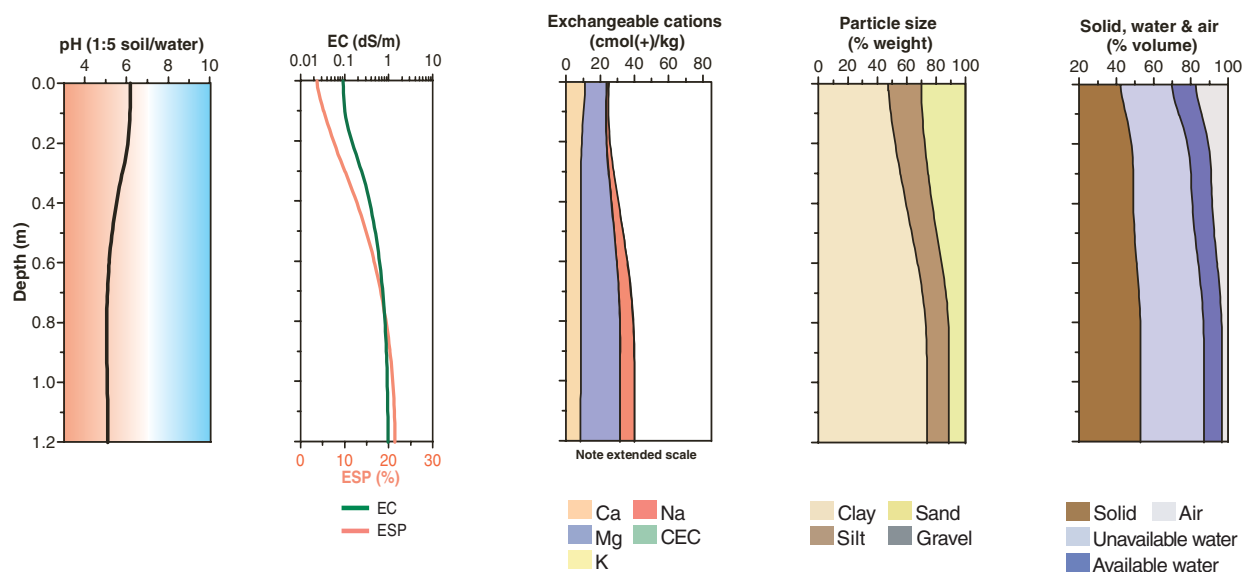
Horizon	Depth (m)	Colour	Mottles	Texture	Structure			Consistence	Coarse fragments	Segregations	Boundary
					Grade	Shape	Size				
A1	0.00–0.10	very dark greyish brown (10YR 3/2)	–	light clay	strong	subangular blocky	10–20 mm	strong (dry)	–	–	clear
B21	0.10–0.40	very dark greyish brown (10YR 3/2)	–	medium clay	moderate	subangular blocky	50–100 mm	very firm (moist)	–	–	gradual
B22	0.40–0.70	very dark greyish brown (10YR 3/2)	2–10% yellow brown faint	medium heavy clay	moderate	lenticular	20–50 mm	very firm (moist)	–	–	gradual
B23	0.70–1.30	dark grey (10YR 4/1)	20–50% orange faint (5–15 mm)	heavy clay	moderate	lenticular	50–100 mm	very firm (moist)	–	–	clear
R	1.30+	bedrock	–	–	–	–	–	–	subrounded boulders	–	–

### Soil chemical and physical properties

Horizon	Sample Depth (m)	pH H <sub>2</sub> O <sup>A</sup>	pH CaCl <sub>2</sub>	Elect. Cond. dS/m <sup>A</sup>	CaCO <sub>3</sub> %	Org. C % <sup>G+</sup>	Extr. P mg/kg <sup>B*</sup>	Tot. P % <sup>A</sup>	Tot. K % <sup>A</sup>	Cation exchange properties <sup>E</sup>								ESP % <sup>A</sup>	Bulk dens. Mg/m <sup>3</sup>	Particle size % <sup>I</sup>			
										cmol(+)/kg										Ca	Mg	K	Na
A1	0.00–0.10	6.2		0.09		2.4	9	0.051	0.093	11	12	0.3	1.0		24		4		11	19	22	48	
B21	0.20–0.30	6.2		0.09				0.025	0.071	8.6	14	0.1	1.7		24		7		9	19	20	52	
B22	0.50–0.60	5.3		0.43				0.021	0.059	8.4	19	0.1	4.6		32		14		6	15	17	61	
B23	0.80–0.90	5.0		0.82				0.017	0.053	8.9	23	0.1	7.7		40		19		2	9	15	69	
B23	1.10–1.20	5.1		0.97				0.017	0.051	8.4	23	0.1	8.6		40		22		2	9	14	71	

\* Bulk sample

## Key profile properties



## General qualities of the soil

<b>Infiltration:</b>	Slow to very slow when swollen.
<b>Available water store:</b>	Moderate.
<b>Permeability:</b>	Low to very low.
<b>Physical root limitations:</b>	Unlikely to occur apart from excessive wetness and poor aeration.
<b>Erosion hazard:</b>	These soils tend to have dispersive subsoils due to magnesium cation dominance.
<b>Nutrient availability:</b>	Nitrogen and potassium are low to medium, copper and zinc availability is medium and phosphorus is very low.
<b>Toxicities:</b>	Strong subsoil acidity may induce aluminium and manganese toxicities. Often saline at depth.



Swampy clay depression with *Melaleuca irbyana*, south of Ipswich, Queensland

*Acknowledgements:* Soil image, soil description and laboratory data: Department of Natural Resources and Mines, Queensland. Tea Tree Clay, Site MFMS4. Landscape image: Alan Fox.